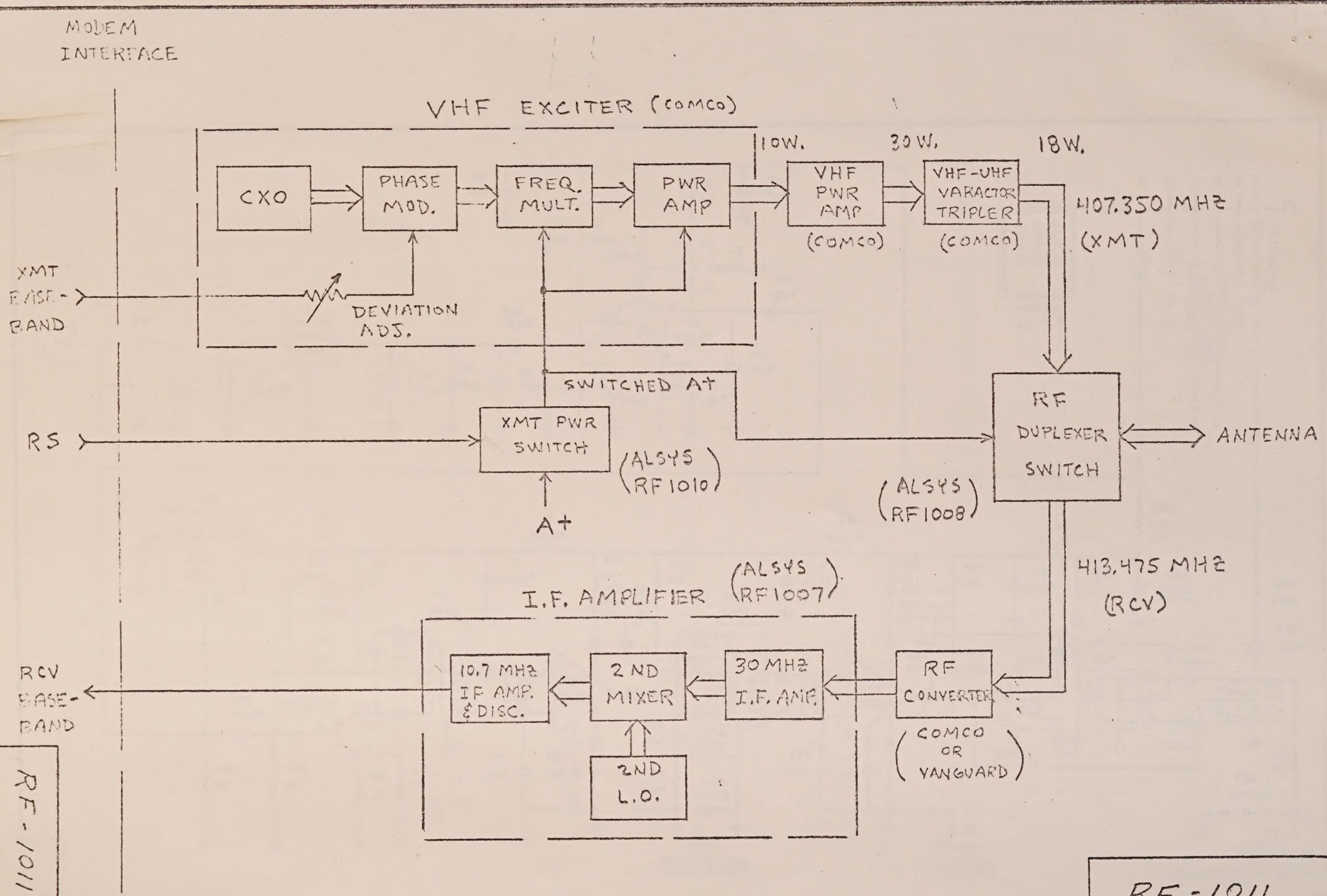
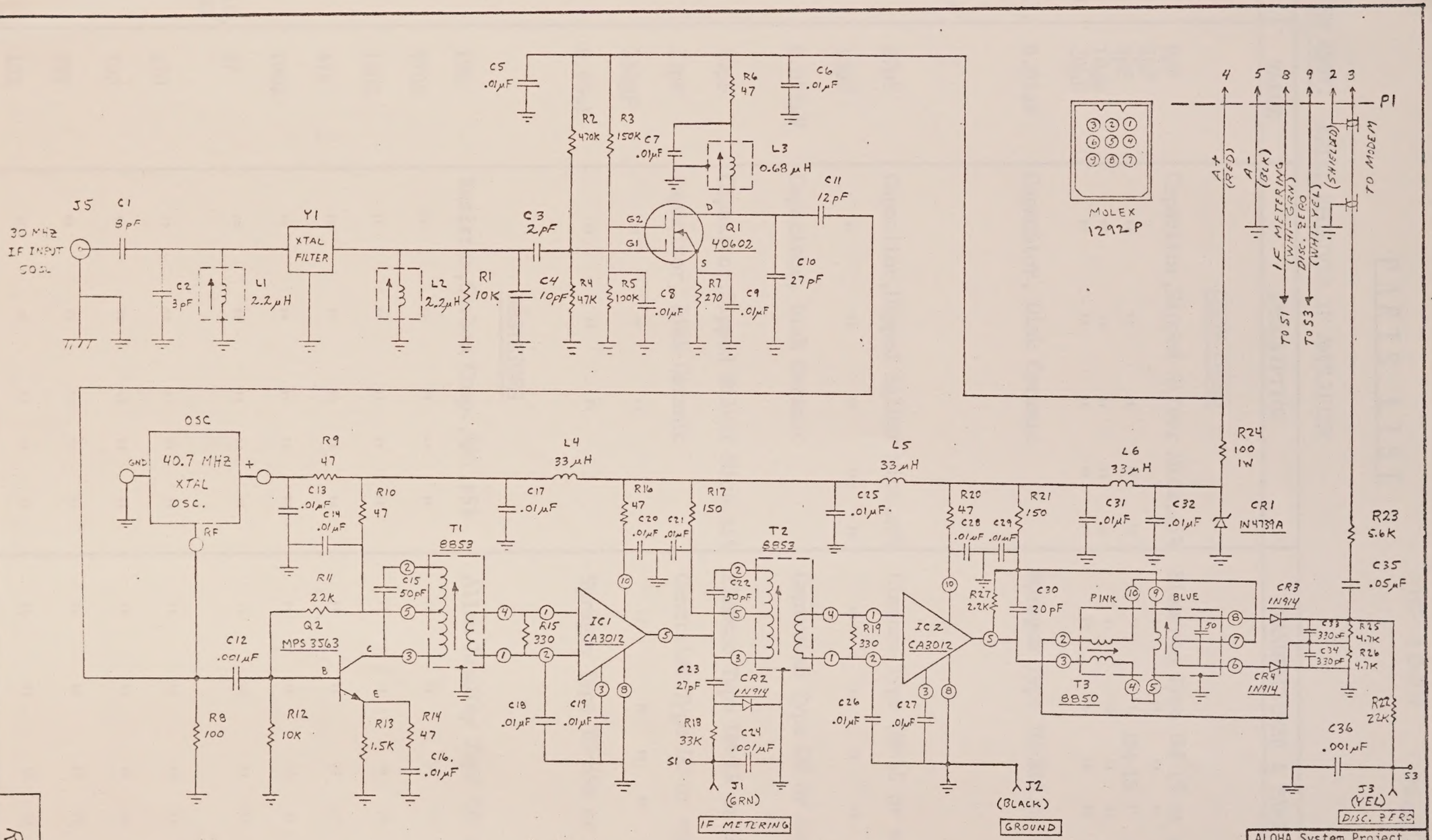


RF-1011

ALOHA System Project, U. of H.
System TCU TRANSCEIVER Sub-system BLOCK DIAGRAM
Name D. Wax
Date 11/2/72
Page 1 of 1



RF 1007

ALOHA System Project, U. of H.
System: KEIKI RECEIVER
Sub-system: IF AMPLIFIER
Name D.W. Wax
Date 2/29/72
Page 1 of 3

RF 1007

PARTS LIST

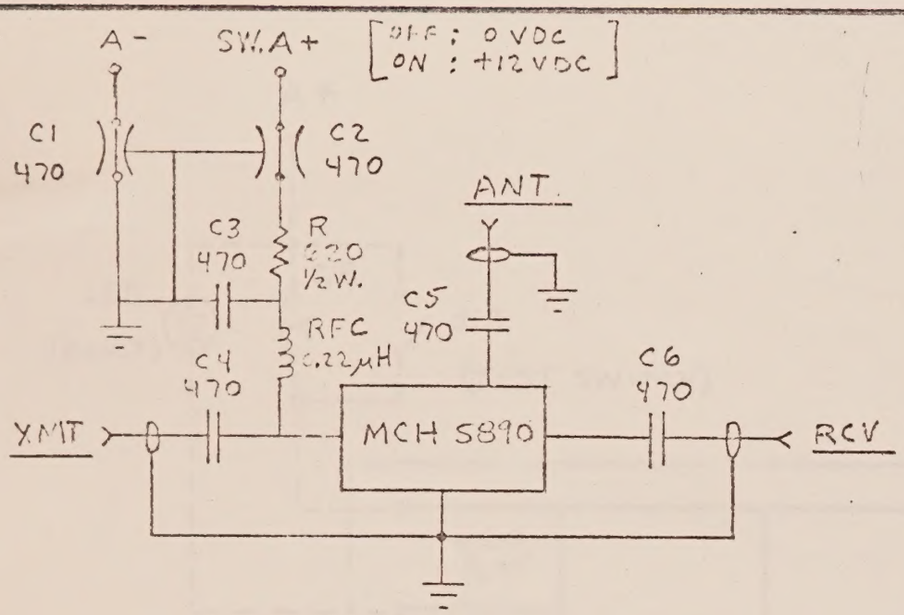
ALOHA SYSTEM ASSY: KEIKI RECEIVER IF AMPLIFIER

SYMBOL	VALUE	DESCRIPTION	MANUFACTURER & PART NO.
		CAPACITORS	
C1	8pF	Capacitor,Dipped Silver Mica,±5%	Elemenco Type DM-15 or equiv.
C3	2pF	" " " " "	" " " " "
C2	3pF	" " " " "	" " DM-15 " "
C4	10pF	" " " " "	" " " " "
C3,C4,C30	20pF	" " " " "	" " " " "
C5-C9,C13, C14,C16-C21, C25-C29, C31, C32	0.01µF	Capacitor, Disk Ceramic	Sprague Type TG-S10 or equiv.
C10	27pF	Capacitor,Dipped Silver Mica,±5%	Elmenco Type DM-15 or equiv.
C11	12pF	" " " " "	" " " " "
C12,C24, C36	0.001µF	Capacitor, Disk Ceramic	Centralab Type DD or equiv.
C15,C22	50pF	Capacitor,Dipped Silver Mica,±5%	Elmenco Type DM-15 or equiv.
C23	27pF	Capacitor, Disk Ceramic	Centralab Type DD or equiv.
C33,C34	330pF	" " "	" " " " "
C35	0.05µF	" " "	Sprague Type TG-S50 or equiv.
		RESISTORS	
R1	10K	Resistor,Carbon Comp.,¼W.,±5%	Allen-Bradley Type CB or equiv.
R2	470K	" " " " "	" " " " " "
R3	150K	" " " " "	" " " " " "
R4	47K	" " " " "	" " " " " "
R5	100K	" " " " "	" " " " " "
R6,R9,R10, R14,R16,R20	47	" " " " "	" " " " " "
R7	270	" " " " "	" " " " " "
R8	100	" " " " "	" " " " " "
R11,R22	22K	" " " " "	" " " " " "
R12	10K	" " " " "	" " " " " "
R13	1.5K	" " " " "	" " " " " "

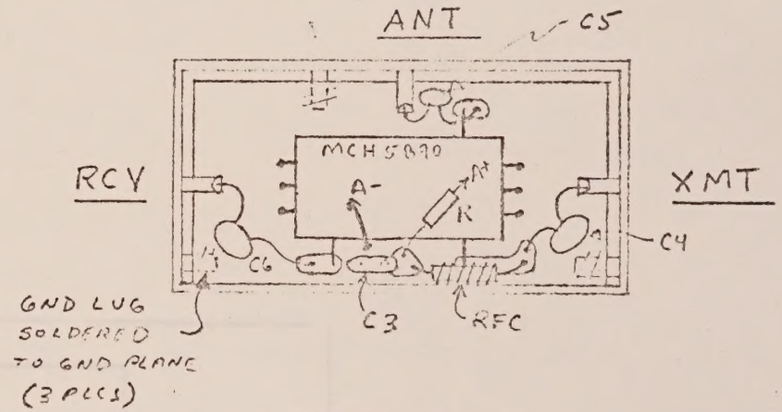
PARTS LIST

ALOHA SYSTEM ASSY: KEIKI RECEIVER IF AMPLIFIER

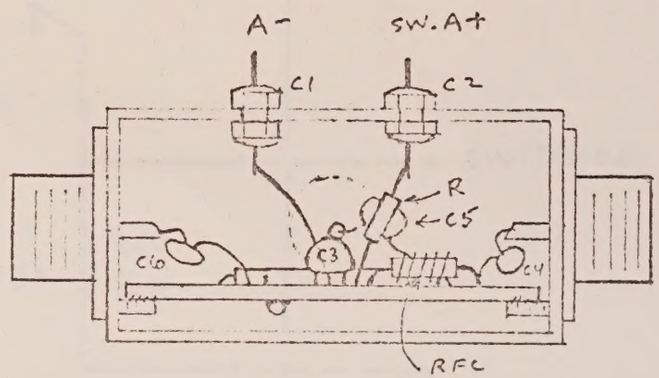
SYMBOL	VALUE	DESCRIPTION	MANUFACTURER & PART NO.
		RESISTORS	
R15,R19	330	Resistor,Carbon Comp.,¼W.,±5%	Allen-Bradley Type CB or equiv.
R17,R21	150	" " " " "	" " " " " "
R18	33K	" " " " "	" " " " " "
R23	5.6K	" " " " "	" " " " " "
R24	100	" " " 1W, ±5%	" " " GB " "
R25,R26	4.7K	" " " ¼W, ±5%	" " " CB " "
R27	2.2K	" " " " "	
		INDUCTORS	
L1,L2	2.2μH	Coil,Shielded, Tunable	Cambion No. 558-7107-17
L3	0.68μH	" " "	Cambion No. 558-7107-11
L4-L6	33μH	Coil, RF Choke	Miller No. 70F335A1 or equiv.
		TRANSFORMERS	
T1,T2		Transformer, 10.7MHZ I.F.	Miller No. 8853
T3		Transformer, 10.7MHZ Disc.	Miller No. 8850
		DIODES	
CR1		Diode, Zener, 9.1V, 1N4739A	Motorola or equiv.
CR2-CR4		Diode, Silicon, 1N914	Texas Inst. or equiv.
		TRANSISTORS	
Q1		Transistor, MOSFET, 40602	RCA Type 40602 or equiv.
Q2		Transistor, Silicon, MPS3563	Motorola Type MPS3563 or equiv.
		INTEGRATED CIRCUITS	
IC1,IC2		Amplifier, I.F., CA3012	RCA Type CA3012 or equiv.
		OSCILLATOR	
OSC		Oscillator, Xtal., 40.7MHZ	International Crystal Type OE-5
		CRYSTAL FILTER	
Y1		Filter, Xtal.,30MHZ CF,100KHZBW	Piezo Technology Inc.Model 4102F



SCHEMATIC



TOP VIEW



SIDE VIEW

PARTS LAYOUT

C1, C2 – 470pF FEED-THRU CAP.

C3-C6 – 470pF DISK CAP.

R – 620 OHM, ½W. RES.

RFC – 0.22 μH RFC, MILLER TYPE RFC-420

MCH 5890 – MICROWAVE SOLID STATE DUPLEXER, MOTOROLA MODEL MCH5590 (ALSO MIC 5890)

HOUSING – POMONA "BLACK BOX" MODEL 2418 OR 2419

PARTS LIST

RF 1008

RF 1008

ALOHA System Project, U. of H.
System KEIKI TRANSCEIVER Sub-system RF DUPLEXER SWITCH
Name D. W. Wax Date 7-24-72
Page 1 of 1

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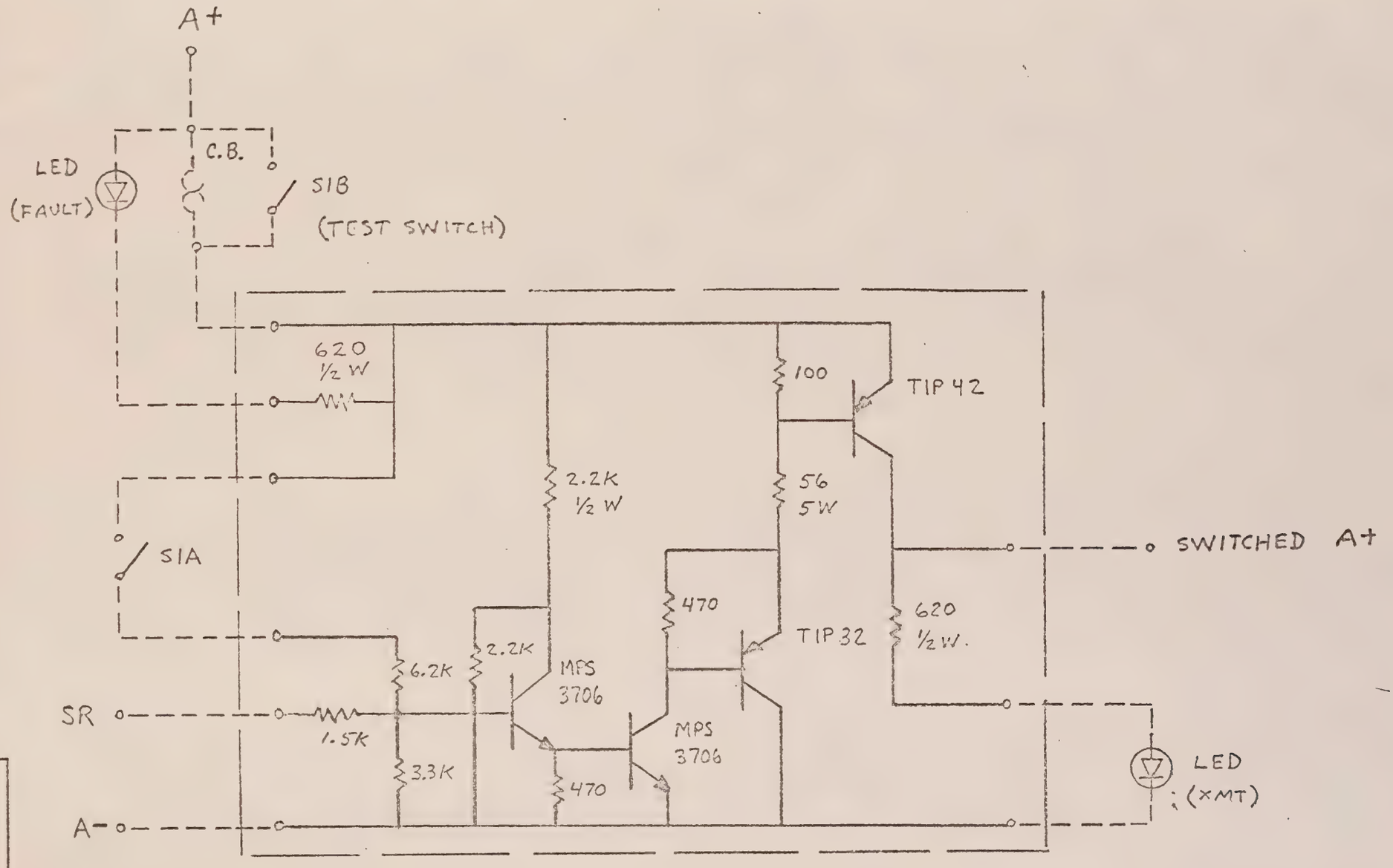


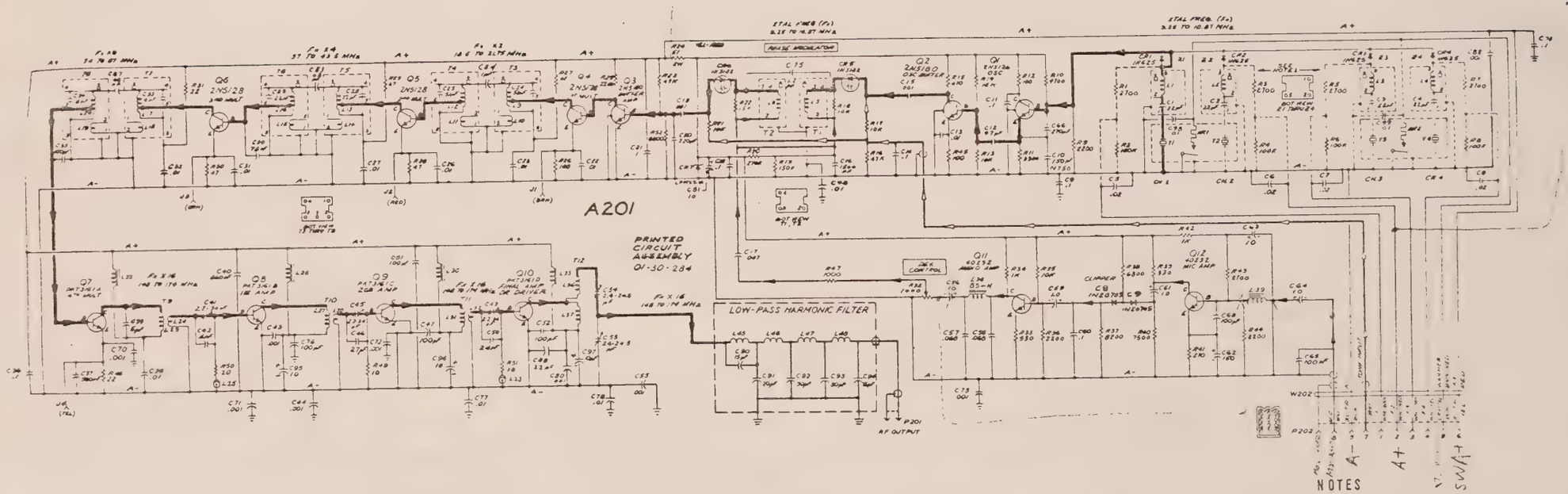
RF-1010

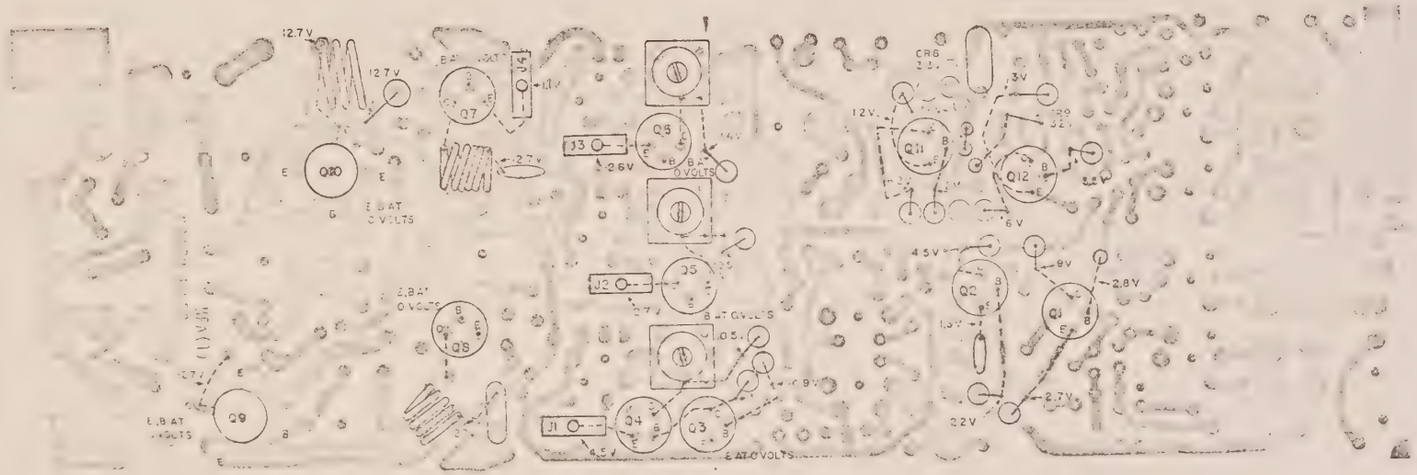
RF-1010

ALOHA System Project, U. of H.
System TCU TRANSCEIVER Sub-system XMT POWER SWITCH

Name D. Wax Date 11/3/72

Page 1 of 1

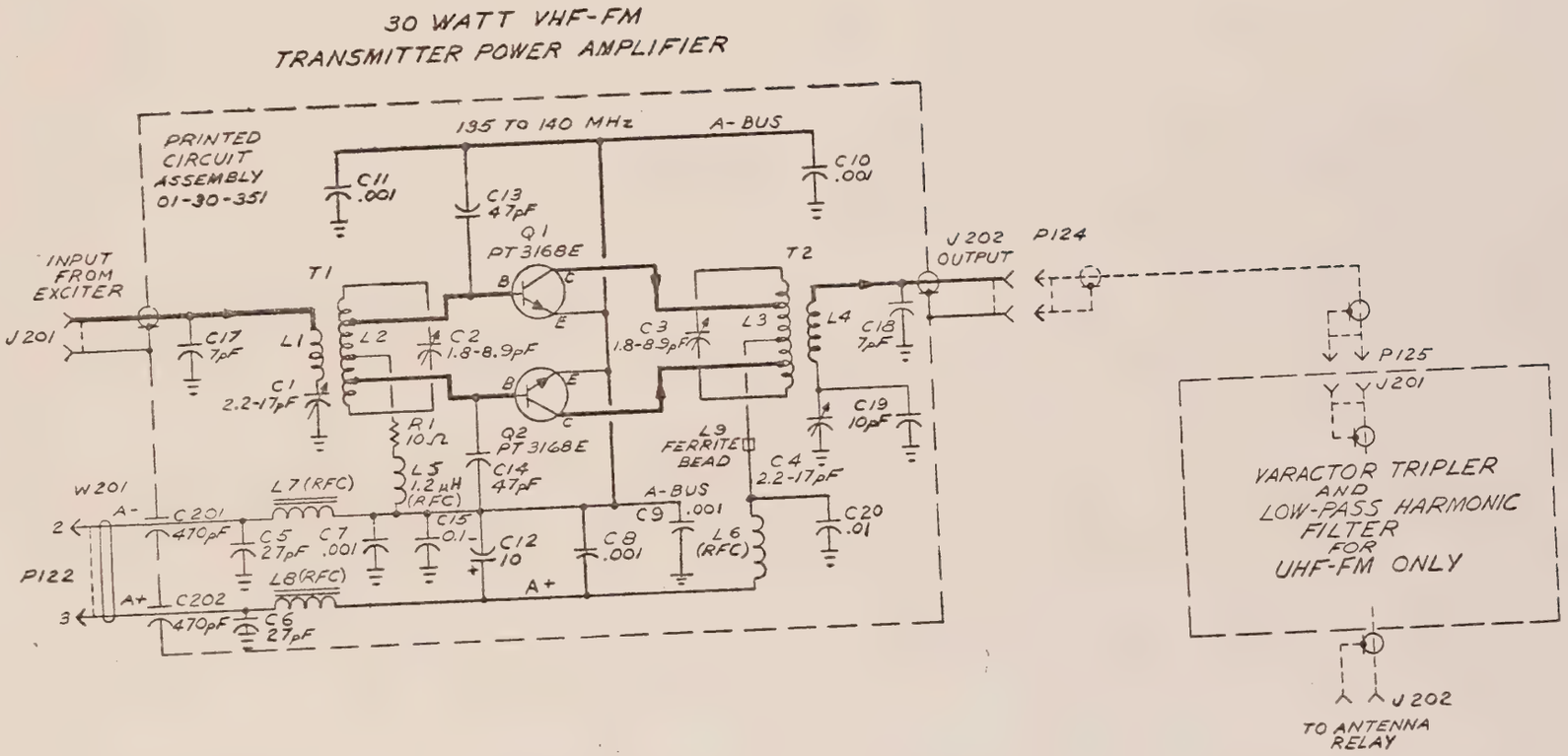




NOTE: GRAY PATTERN IS REVERSE SIDE OF BOARD.

1. All resistors are ±5%, 1/2 watt, unless otherwise noted.
2. All capacitors are in microfarads, unless otherwise indicated.
3. All wiring #26 A.W.G., or printed circuit pattern, unless otherwise indicated.
4. For single frequency operation only HR 1, R 1, Y 1 and Z 1 are used and CR 1 is replaced by a jumper.
5. All leads and parts indicated by dashed lines are optional circuitry.
6. CONDITIONS OF TEST, for typical voltage readings.
   (a) Source voltage 13.6 VDC at Battery cable.
   (b) A+, 12.7 VDC (as measured at pin 6 of P202).
   (c) Voltage measurements are in Volts DC, taken with a VTVM or 20,000 Ω/V. VOM, read in respect to A-, on a single frequency unit, with no audio input.
   (d) Voltages at test points are typical but will vary from set to set and throughout the frequency band.

FIGURE 6-1.
SCHEMATIC AND TYPICAL VOLTAGE READINGS
FOR TRANSMITTER-EXCITER ASSEMBLY

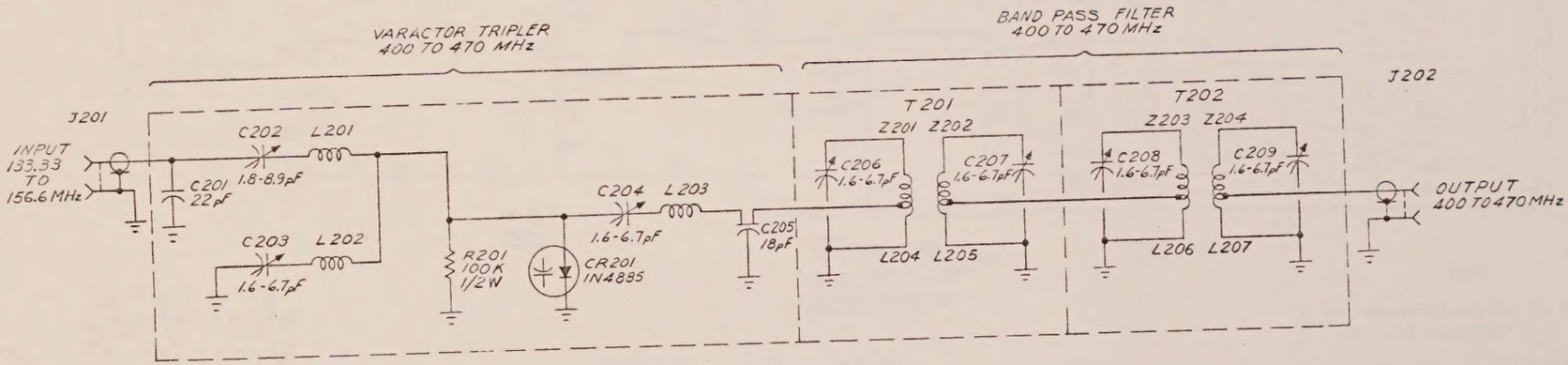


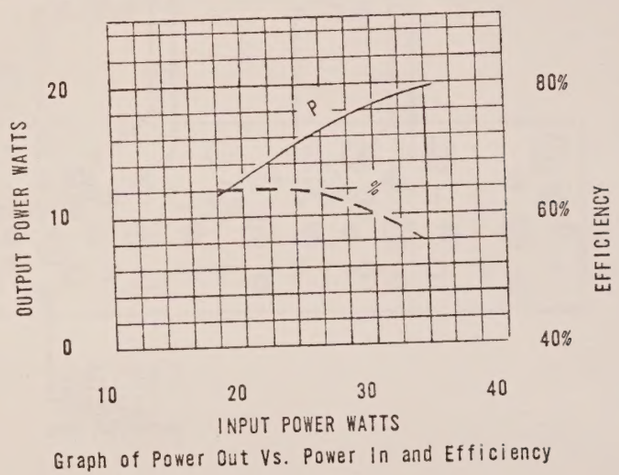
RF POWER AMPLIFIER PERFORMANCE

DC Volts In	13.6 V
DC Amps In	4.0 A
DC Power In	54.4 W
RF Power In	10.0 W
RF Power Out	30.0 W

$$\text{Efficiency} = \frac{\text{RF Power Out}}{\text{DC Power In}} \quad 55.1\ \%$$

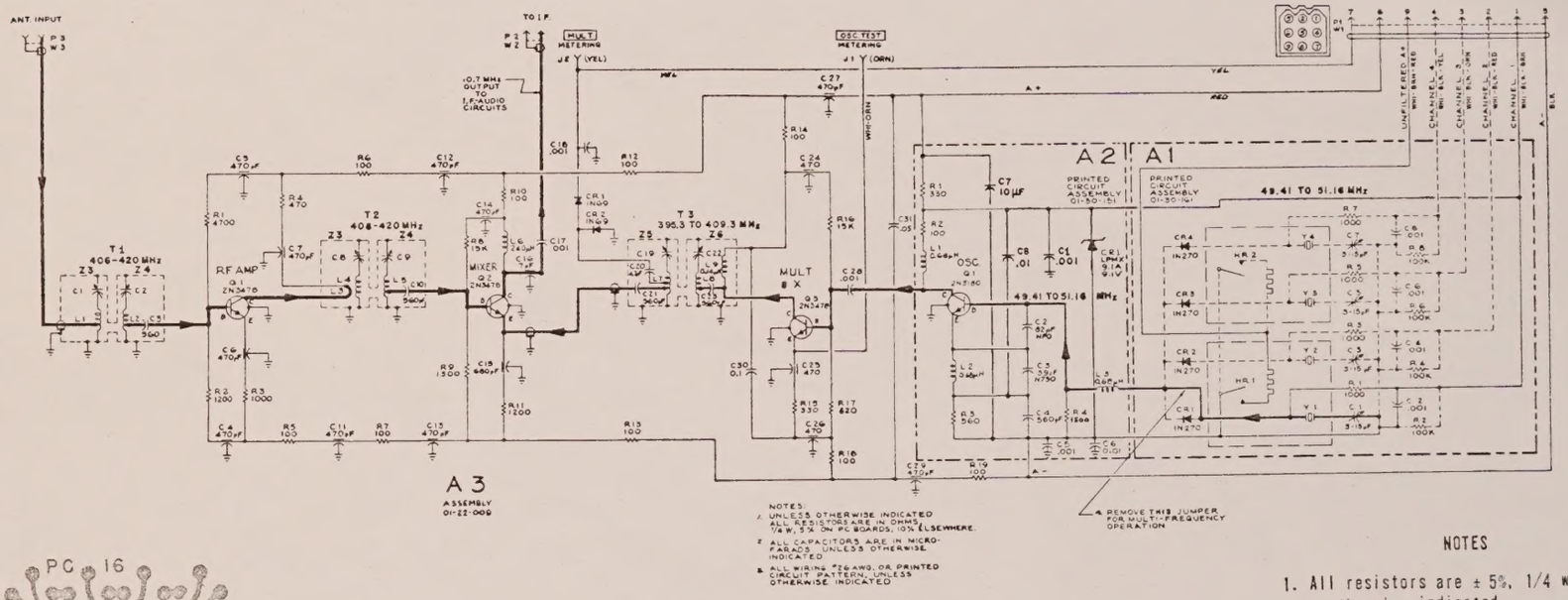
Figure 6-1.
Schematic and Typical Operational Ratings,
30 Watt VHF-FM Transmitter Power Amplifier

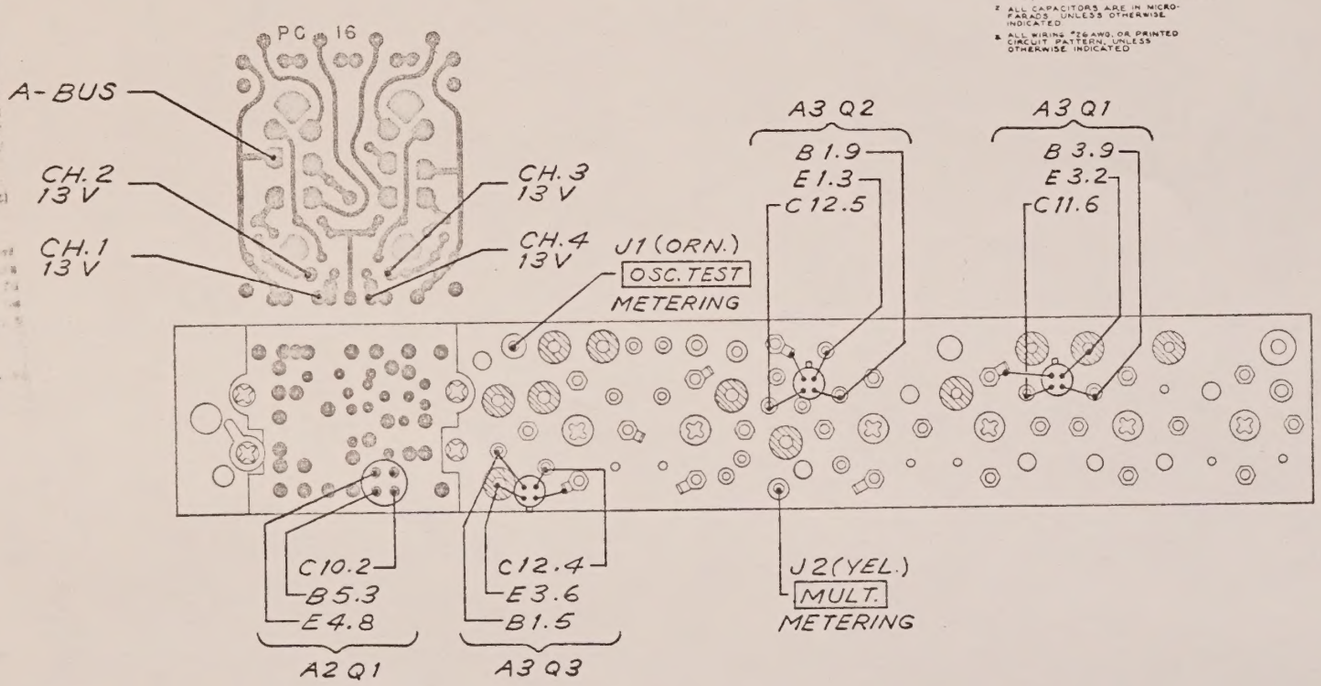




Graph of Power Out Vs. Power In and Efficiency

Figure 6-1 SCHEMATIC, 18-20 WATT, UHF-FM VARACTOR TRIPLER


ANT. INPUT
TO I.F.
MULT. METERING
OSC. TEST METERING
10.7 MHz OUTPUT TO I.F./AUDIO CIRCUITS
T1 406-420 MHz
T2 408-420 MHz
T3 395.3 TO 409.3 MHz
RF AMP
MIXER
MULT 8 X
OSC
A2
A1
49.41 TO 51.16 MHz
A3
ASSEMBLY 01-22-009
NOTES:
1. UNLESS OTHERWISE INDICATED ALL RESISTORS ARE IN OHMS, 1/4 W, 5% ON PC BOARDS, 10% ELSEWHERE.
2. ALL CAPACITORS ARE IN MICROFARADS, UNLESS OTHERWISE INDICATED
3. ALL WIRING #26 AWG, OR PRINTED CIRCUIT PATTERN, UNLESS OTHERWISE INDICATED
4. REMOVE THIS JUMPER FOR MULTI-FREQUENCY OPERATION



NOTES

1. All resistors are ± 5%, 1/4 watt, unless otherwise indicated.
2. All capacitors are in microfarads, unless otherwise indicated.
3. All wiring #26 A.W.G., or printed circuit pattern, unless otherwise indicated.
4. For single frequency operation, use jumper in place of A1CR1.
5. All parts and wiring shown dashed are for optional circuitry.
6. CONDITIONS OF TEST, for typical voltage readings.
   (a) Receiver power supply input 13.8 VDC.
   (b) Voltage measurements are in Volts DC, taken with a VTVM with an 11 megohm input, read in respect to A- at A3C32.
   (c) VOLUME Control set at fully CCW.
   (d) SQUELCH Control set at fully CCW.
   (e) Crystal(s) in place and desired channel selected.

FIGURE 6-1.
SCHEMATIC AND TYPICAL VOLTAGE READINGS
OSCILLATOR-MULTIPLIER-RF AMPLIFIER ASSE